(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 210 261 B1**

(12) **EUROPEAN PATENT SPECIFICATION published in accordance with Art. 158(3) EPC**

(45) Date of publication of patent specification: **26.06.91**

(51) Int. Cl.5: **B32B 7/00**, B32B 31/00, B29C 47/00

(21) Application number: **86901268.2**

(22) Date of filing: **05.02.86**

(86) International application number:
PCT/US86/00254

(87) International publication number:
WO 86/04547 (14.08.86 86/18)

Divisional application 89107199.5 filed on 05/02/86.

(54) COMPOSITE FACESTOCKS AND LINERS.

(30) Priority: **05.02.85 US 699204**

(43) Date of publication of application:
04.02.87 Bulletin 87/06

(45) Publication of the grant of the patent:
26.06.91 Bulletin 91/26

(84) Designated Contracting States:
BE DE FR GB IT NL SE

(56) References cited:

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EP 0 210 261 B1

Description

The present invention relates to liners for web stock for display products such as labels, signs and the like, and to methods of manufacturing such liners, and to combined constructions including the facestocks and liners.

BACKGROUND OF THE INVENTION

It has long been known to manufacture and distribute pressure-sensitive adhesive stock for display products such as labels and signs by providing a layer of face material for the label or sign backed by a layer of pressure-sensitive adhesive which in turn is covered by a release liner. The liner protects the adhesive during shipment and storage. With specific reference to labels, the liner also allows for efficient handling and dispensing of individual labels which have been die-cut from the layer of face material while leaving the liner uncut.

Many label and sign applications require that the face material be a polymeric film material which can provide properties lacking in paper, such as weatherability (for outdoor signs), strength, water resistance, abrasion resistance, gloss and other properties. Because material costs in the manufacture of such film facestocks are relatively high, the desirability of reducing material costs without sacrifice of quality has long been apparent, but little or nothing has been accomplished toward this end.

Because the cost of paper generally compares favorably with the cost of film materials, and because paper liners also have other highly desirable characteristics, the liners used with film facestocks have generally comprised paper web stock coated with a very thin layer of silicone-based release agent. The paper web's outer or "back" face has the roughness required to track well on the smooth steel rolls used in high speed manufacturing. The inner release-coated face of the paper web is uneven enough to slightly roughen tie surface of the adhesive protected by tie liner, thus preventing subsequent air entrapment and bubble formation between label and container in labeling applications.

However, paper readily absorbs and desorbs moisture, leading to curling and distortion of film facestock with which a paper liner is used. This is particularly a problem with sheet facestock used, say, for signs and decals. Moisture absorption and curling have been reduced to a degree by coating the outside face of the paper liner with a thin moisture barrier layer of film material, but edge absorption or gradual moisture transmission through the moisture barrier itself have largely thwarted efforts to eliminate the problem of curling of the liner and consequent distortion of the film facestock.

Another disadvantage of paper is its relative mechanical weakness. This is particularly a drawback in high speed packaging of high volume consumer products where labeling machinery must dispense rolls of liner-carried labels at high speed. A break in the paper liner forces shutdown of tie entire packaging line until the labeling operation is properly reset. As line speeds have continued to increase in recent years, the severity of this problem has led some mass packagers to specify that labels are to be carried on polyester film liner. The great strength of the polyester film eliminates the liner breakage problem, but at a price which reflects very much higher material costs than those associated with paper.

The present invention

In a first aspect, the invention is directed to a liner comprising a multilayer web construction for use with label and sign stock, said web construction comprising a coextrudate in the form of at least two firmly adhered polymeric layers. Such a liner, known per se from US-A-4410582, is characterized in that at least one of said layers comprises a multiphase layer including a continuous phase of polymeric film material and a discontinuous phase of filler material, both of said phases being dimensionally stable under conditions of moisture absorption and substantially free of voids capable of transmitting moisture from one side of said layer to the other side of the layer, said liner having first and second faces, at least one of said faces being roughened at least in part by the mechanical effect of the filler material contained in said extrudate to at least 5 Sheffield units, said second face (20;20a) of said liner being roughened by the mechanical effect of the filler to exhibit a roughness in the range of 5 to 150 Sheffield units and providing a release face including release means.

In a second aspect, the invention is directed to a roll or sheet stock for pressure-sensitive labels, signs or other graphics, characterized in that the liner above is combined with facestock by a pressure-sensitive adhesive layer which is releasably supported on said release face of the liner.

In a third and last aspect, the invention is directed to a method a manufacturing all-plastics liner for label stock which will roughen the adhesive surface of the label stock to a degree suitable for labeling applications while simultaneously providing for the roughening of the exposed face of the liner to a higher degree suitable for high speed web tracking, comprising providing a plurality of at least two charges of film-forming resin of like or unlike composition, and characterized by the steps of:

predetermining a fill differential by mixing filler in said charges to preselected differing degrees characteristics sufficient to affect the roughness of each face of the resulting coextrudate;
coextruding said charges to thereby form a multilayer polymeric liner comprising cojoined layers and establish said predetermined fill differential between different layers of the formed liner and thereby differentially affect the roughness of the liner faces;
and choosing said preselected differing degrees and/or characteristics of filler mix such that the face of the liner which is to contact the adhesive surface of label stock exhibits a degree of roughness suitable for the label adhesive and the face of the liner which is to be the exposed face in use exhibits a higher degree of roughness suitable for high speed web tracking.

In this specification, the roughness of the faces of the liner is reported in Sheffield units. The Sheffield test provides a technique for the rapid measurement of smoothness (or roughness) by the airleak method, and is described, for instance, in "TAPPI Standard and Provisional Methods", 1978, - see "Useful Method 518". As applied to the present invention, the measuring instrument should be provided with a scale which is appropriate for the degree of roughness which is to be expected.

As will be seen, the present invention replaces paper liner stock by liner stock of polymeric film material. This is done in such a way as to simulate those characteristics of paper that provide for good web tracking and adequate prevention of the problem of air entrapment and bubbling. At the same time, the problems of curling and paper breaking are eliminated because the film material used according to the invention is inherently moisture-insensitive and is much stronger than paper. All this is accomplished at little or no increase over the cost associated with paper liners. In a word, quality is greatly improved at little or no increase in costs, and even with a reduction in costs in some instance.

Liner stock constructions illustrating the invention will be described first. A prototypical example is illustrated in FIG. 1, which shows a multilayer web construction generally indicated by the reference numeral 10. The multilayer construction 10 includes a core layer 12, and skin layers 14 and 16. A first face, generally indicated by the reference numeral 18, is the outer or "back" face of the liner stock. This face is identified with the side of the web that will contact and be guided by the smooth steel rolls of the manufacturing line in which the liner stock is to be employed. A second face, generally indicated by the reference numeral 20, is the inner face of the liner. This face is identified with the side of the liner nearest the adhesive to be protected by the liner.

The layers 12, 14, and 16 comprise polymeric film materials and are formed by simultaneous extrusion from any suitable known type of coextrusion dies such as, for example, a Cloeren "vane" die heretofore employed, for example,, to form multilayer films used in food packaging applications. The layers 12, 14, and 16 are firmly adhered to each other in a permanently combined state to provide a unitary coextrudate for all three layers, although any one or more polymers or copolymers which will form firmly adherent films when coextruded and which are otherwise suitable, particularly in respect of heat resistance and hardness, may be employed, such as acrylonitrile butadiene styrene, nylon, and polystyrene.

At least one of the layers of the coextrudate is loaded with filler material to provide a continuous phase of the film-forming material itself and a discontinuous phase of the filler material. Thus, in the example of FIG. 1 the core layer 12 is loaded with filler 22. Mica is presently preferred as filler for its heat resistance and for its flatness which contributes to stiffness, but other fillers may be used, such as calcium carbonate, wollastinite, glass fibers and talc. The filler comprises between about 10% and 40% by weight of the core layer and is mixed into the charge of film-forming resin which is fed to the extrusion orifice associated with formation of the core layer 12.

In the example of FIG. 1, the skin layer 14 on the back side 18 of the liner stock construction also contains filler 24. The proportion of filler in the skin layer 14 is between about 1% and 15% by weight. Again, mica is presently preferred, but other fillers such as those mentioned above may be used. The filler 24 is mixed into the charge of film-forming resin which is fed to the extrusion orifice associated with formation of the skin layer 14.

It will be understood by those in the industry that at least some materials used as fillers may also be used in small amounts as additives, such as a coloring agent, an antistatic, an antioxidant, a whitening or coloring means, or for other similar purposes. However, such other uses do not generally affect the mechanical behavior or nature of the formed film, and do not represent filling of the film as contemplated by the invention.

Release means is provided on the second face or inner side 20 and may comprise a silicone release coating 26 on the skin layer 16. The skin layer 16, being of polypropylene or other material having the good silicone holdout properties of plastics, helps assure good release action and avoidance of blocking by substantially acting as a stop against absorption of the release layer into the core layer and thereby maintaining the uniformity of the release coating 26 after it is applied.

FIG. 2 illustrates a liner stock construction 10a which is similar in many ways to the construction 10 of FIG. 1, and in which similar components are numbered as in FIG. 1 but with the addition of the letter "a". In the construction 10a of FIG. 2, however, there is no separate skin layer on the "back" side or first face 18a. Instead, the first face 18a comprises the outer or exposed side of the core layer 12a.

In the constructions shown in FIGS. 1 and 2, the first and second faces are roughened by the mechanical effect of the filler material, the first face to a greater degree than the second face. The overall range of roughness of the first face is between about 100 and 500 Sheffield units, but the extremes of this range depend somewhat on the form of construction used. Thus, the range of roughness of the first face 18 in the construction of FIG. 1 results from the mechanical effect of the filler 24 contained in skin layer 14 and ranges between about 100 and 350 Sheffield units, and the range of roughness of the first face 18a in the construction of FIG. 2 results from the mechanical effect of the filler 22a in core layer 12a and ranges between about 125 and 500 Sheffield units.

The overall roughness of the second face in each of the constructions shown in FIGS. 1 and 2 is in a range of from about 5 to 150 Sheffield units. In both these illustrated constructions, the roughening of the second face 20 or 20a is by the mechanical effect of the filler 22 or 22a in the core layer 12 or 12a acting through the skin layer 16 or 16a.

Even though the lower end of the roughness range for the first face (about 100 or 125 units) is below the upper end of the roughness range for the second face (about 150 units), in the illustrated constructions the roughness of the first face exceeds that of the second.

Both the continuous phase of the core layer 12 (or 12a) and the discontinuous phase of filler material 22 (or 22a) are dimensionally stable under conditions of moisture absorption or desorption such as may occur during long periods of warehousing in humid or dry climates. The same is true of the two-phase skin layer 14 of FIG. 1. The skins 16 and 16a are similarly stable. The dimensional stability of each liner construction is therefore independent of humidity conditions and the construction therefore remains flat (not curled or distorted) under different humidity conditions as encountered at different geographic locations or at the same location at different times. The core layers, as well as the skins of the constructions 10 and 10a, are substantially free of voids so that the web also remains flat and undistorted under varying web temperature conditions as encountered in hot air drying of inks or coatings for facestocks with which the liner is used.

One accepted test of flatness uses a test sheet of the stock being tested which is 91.44 cm (36 inches) long and 60.96 cm (24 inches) wide. The sheet is considered flat if it exhibits a lift of no more than 0.635 cm (1/4 inch) at any corner, edge or interior area portion under the humidity condition or conditions encountered. Such a stock may test "flat" at say 50% relative humidity, a humidity level commonly used at present for quality testing at the factory, but may fail the same test under greater or lesser humidities, particularly where an extreme change in humidity is encountered in the field. In contrast, test sheets of the constructions of the present invention such as constructions 10 and 10a, exhibit less than 0.3175 cm (1/8 inch) lift, and in fact little or no discernable lift, under any humidity condition that can be expected to be encountered, say from 5% to 100% relative humidity.

It will be seen from the foregoing that an all-plastic liner has been provided, with both faces roughened but to different degrees. From a method stand-point, this difference in degree of roughening is developed by providing a plurality of at least two charges of film-forming resin in which a fill differential is predefined by mixing filler in the charges to preselected differing degrees (one of which may be zero) so that the charges differ in degree of fill. The fill differential may also be predefined, in whole or in part, by using, for different charges, fillers of (different particle size and/or of any other differing charge characteristics, such as shape, sufficient to affect the roughness of each face of the resulting coextrudate. The charges are coextruded to thereby both (1) form a multilayer polymeric liner comprising cojoined layers and (2) establish the predefined fill differential between different layers of the formed liner and thereby differentially affect the roughness of the liner faces. The preselected differing degrees and/or characteristics of filler mix are chosen such that the face of the liner which is to contact the adhesive surface of label stock exhibits a degree of roughness suitable for the label adhesive and the face of the liner which is to be the exposed face in use exhibits a higher degree of roughness suitable for high speed web tracking.

Thus, in the manufacture of the liner of FIG. 1, charges A, B, and C, corresponding respectively to layers 16, 12, and 14, may be prepared for coextrusion through a coextrusion die 30, as schematically illustrated in FIG. 3A. By preselection, charge A contains no filler, charge B contains the highest degree of filler within the ranges specified earlier, and charge C contains a lower degree of filler within the ranges specified earlier. Upon coextrusion through the die 30, the charges form a multilayer extrudate to which the silicone release coating 26 (FIG. 1) may be applied at station R to

provide the multilayer web construction 10 having the face 18 roughened to a relatively high degree and the face 20 roughened to a lower degree. The release coating is dried or cured following application by any suitable means (not shown) Prior to application of the release coating at station R, the formed films may be hot-stretched in a known manner to provide machine direction orientation of the liner 10. This is generally done for "roll liner," but not "sheet liner," which terms are defined below.

In accordance with well-known practice in the industry, the release face of a release liner may be coated with a layer of pressure-sensitive adhesive for subsequent transfer of the adhesive to the facestock with which the liner is employed. When the facestock is combined with the liner, the adhesive is joined to the facestock. Later, the liner is removed to expose the adhesive, which now remains permanently joined to the facestock.

Thus, as indicated in FIG. 3A, adhesive may be applied at station S following drying or cure of the release coat previously applied at station R. This may be a tandem coating operation, or the adhesive coating may be on a separate coating line. Or, the adhesive may be applied at some later time prior to the combining of the release liner 10 with facestock. The combining of the liner with a facestock 32 is diagrammatically illustrated in FIG. 3B. FIG. 3C diagrammatically illustrates the die-cutting of the facestock 32. at a station T, into a series of pressure-sensitive labels 34 carried by the release liner 10. As is well known, this step is usually performed by rotary cutting dies and involves the stripping of the matrix (not shown) of waste or trim surrounding the formed labels. FIG. 3D illustrates the application of the labels 34 to passing workpieces 36 by use of a peelback edge 38 to dispense the labels 34 by progressively removing the liner from them in a well-known manner to thereby expose the adhesive side of the labels and project the labels into contact with passing work-pieces.

FIG. 4 diagrammatically illustrates a film of conventional or prior art facestock 32 with pressure-sensitive adhesive 40 permanently combined therewith, such facestock being employed in the methods of the invention at the stage illustrated at the right end of FIG. 3B or the left end of FIG. 3C. At this stage, tie adhesive 40 (not shown in FIGS. 3A to 3D) may be releasably carried on the liner 10 of the invention (on or with which it may have been previously coated or combined, as by the previously mentioned coating step at station S). Alternatively, the adhesive 40 may have been directly coated on or combined with the facestock 32 prior to the combining of the facestock with the liner 10. The liner 10 is not shown in FIG. 4: if it were, this figure would illustrate one aspect of the present invention, namely, the combining of a conventional type of facestock with a coextruded liner of the type taught herein.

Where the adhesive contacts the inner face of the liner 10, either at station S or upon the combining of the facestock with the liner 10 if the adhesive is originally coated on or combined with the facestock, the roughness of face 20 of the liner 10 is imparted to the adhesive. When the adhesive is later exposed, as at face 39 in the step illustrated in FIG. 3D, the exposed adhesive face exhibits the roughness imparted by face 20 of the liner. This roughness performs an important function in eliminating or minimizing air entrapment during label application and the resultant forming of blisters or high spots on the applied label.

Meanwhile, the reverse or back face 18 of the liner 18, with its comparatively higher degree of roughness, tracks smoothly and securely and without slippage on the steel idler rolls and drive rolls (not shown) used to guide or drive the liner 10 in any of the stages of FIGS. 3A to 3D.

It will be understood that the operations shown in FIGS. 3A to 3D will often be done at different locations by different manufacturers, or they may be combined. For example, the steps of FIG. 3A may be performed by a liner and adhesives manufacturer, the steps of FIGS. 3B and 3C may be performed by a label manufacturer on one continuous pass, rather than being interrupted by a wind-unwind sequence as illustrated, and the steps of FIG. 3D may be performed by a packager of manufactured products.

It will be seen from the foregoing that the differential fill of the charges to be extruded can produce a degree of roughness at the inner face 20 of liner 10 that is suitable for roughening the surface of adhesive 40 (FIG. 4) and can also produce a greater degree of roughness, suitable for high speed web tracking, at the back face 18 of liner 10.

Facestock which is formed into labels is usually wound and unwound in roll form and is therefore one form of what is known as "roll stock" or "roll facestock," and the accompanying liner is called "roll liner." The foregoing relates to roll stock and roll liner. In many respects, the invention also applies, however, to "sheet liner" used with "sheet stock" which might be formed as indicated in FIGS. 3A and 3B but would then be cut into sheets and decorated (by screen printing, for example) for use as decals, bumper stickers, thermal die-cut signs, and the like. Materials and procedures used for sheet stock and sheet liner may be the same or may differ to some degree from those used for roll stock and roll liner, but tie principles of the construction and manufacture of the liner can be similar whether it be roll liner or sheet liner.

The release liner 10a of FIG. 2 may be roll liner or sheet liner. This liner 10a, with its differential roughening, may be extruded in a manner similar to that indicated in FIG. 3A, but with only two charges corresponding to the layers 16a and 12a. The charge corresponding to layer 16a has no filler and tie charge corresponding to layer 12a includes the filler 22a mixed therein. This differential fill as between layers 12a and 16a causes a relatively high degree of roughness at face 18a by relatively direct action and a lower degree of roughness at face 20a on which the same filler 22a acts more indirectly through the layer 16a.

Although the liner of this invention may be combined with conventional facestock, as illustrated in Fig. 4, in a particular embodiment it is combined with facestock which is a coextrudate as defined in Claim 19. Examples of such film facestocks are seen in FIGS. 5 and 6. In FIG. 5, a multilayer web construction, generally indicated by the reference numeral 50, comprises a coextrudate including a cure layer 52, a skin layer 54 on the face side of the coextrudate, and a skin layer 56 on the inner side of the coextrudate opposite the face side. Combined on the inner side of the coextrudate is a pressure-sensitive adhesive layer 58. In FIG. 6, a multilayer web construction, generally indicated by the numeral 50a, comprises layers 52a, 54a, 56a, and 58a generally corresponding to the layers 52, 54, 56, and 58 in FIG. 5. However, in FIG. 6, tie layers 53 join the core layer 52a to the skin layers 54a and 56a.

The coextrudates of FIGS. 5 and 6 are similar to the previously described liner stock in that they comprise polymeric film materials, are formed by simultaneous extrusion from a suitable known type of coextrusion die, and are adhered to each other in a permanently combined state to provide a unitary coextrudate. The FIG. 5 construction is used when the materials of the core and skins are such that these layers firmly adhere or bond to each other when coextruded as adjacent film layers. The FIG. 6 construction, with the tie layers 53, is used when the core and skin materials do not sufficiently adhere or bond to each other when they are extruded together. Generally, the construction of FIG. 5 is presently used for roll film facestock and that of FIG. 6 for sheet film facestocks because, while polyethylene is presently preferred as the core material for both applications, roll film facestocks and sheet film facestocks generally use different skin materials, and the presently preferred material for the skin of the roll film facestock (ethylene vinyl acetate) is compatible with polyethylene in respect of inherent adhesion or bonding, while the presently preferred material for the skin of the sheet film facestock (polyvinyl chloride) is not.

The materials of the layers of constructions 50 and 50a are selected according to the cost/benefit characteristics of candidate materials considering the functional or operational requirements of the layer in question.

Thus, the facestock at its outside surface may require high weatherability and printability and good uniformity and control of surface texture, whether gloss or matte, whereas these qualities either are not necessary or are required in far lesser degree in the core of the facestocks. The latter, however, must be such as to give the facestock opacity and the desired degree of stiffness, as well as sufficient body and strength, and represents generally the great bulk of the total material used in the construction. The stiffness of this core material should be between about 10 and 100 Gurley. The inner surface of the film coextrudate must give good anchorage for the adhesive.

The presently preferred material for the core layers 54 or 54a in many facestock applications is polyethylene of low, medium, or high density of between about 0,915 and 0.965 specific gravity. This is a relatively low cost, extrudable film-forming material whose stiffness (ranging through decreasing degrees of flexibility to semirigid) may be determined by the density selected, and whose body and strength are sufficient for most uses. Polyethylene of lower densities, down to a specific gravity of .890, may be employed for greater flexibility.

Another preferred material for the core layers 54 or 54a is polypropylene (or a propylene copolymer) having a flex modulus range of between about 896.35×10^6 and 1723.75×10^6 Pa (130,000 and 250,000 psi)at 22.8° C (73° F), depending on the stiffness desired.

Ethylene vinyl acetate is generally the presently preferred material for both skin layers 54 and 56 in roll film applications, while polyvinyl chloride is generally the presently preferred material for both skin layers 54a and 56a in sheet film applications. A suitable resin for tie layer 53 in this instance is "CXA", marketed by DuPont. Another material for forming tie layers is "Plexar" marketed by Chemplex Co. Other specific materials are also available for performing the tying function in coextrusion operations. The outer surface of the skin layer 54 or 54a is corona-treated in a known manner to increase printability of the skin.

The preferred identity of the outer and inner skin layer material at present is partly a choice of convenience in reduction to practice, and it is contemplated that these materials often will not be identical in actual manufacture. For example, ethylene vinyl acetate might be the material of choice for the outer skin, but ethylene acrylic acid might be used on the inner skin for better anchorage to, say, an acrylic adhesive of choice.

Other materials for the skin layers include eth-

ylene acrylic acid, ethylene methyl acrylic acid, ethylene ethyl acrylate, ethylene methyl acrylate, acrylonitrile butadiene styrene, nylon, polybutylene, polystyrene, polyurethane, polysulfone, polyvinylidene chloride, polypropylene, polycarbonate, polymethyl pentene, styrene maleic anhydride, styrene acrylonitrile, ionomers based on sodium or zinc salts of ethylene/methacrylic acid, acrylics, cellulosics, fluoroplastics, nitriles, and thermoplastic polyesters.

While the foregoing examples of facestocks have employed skin layers on each side of the core, there are instances where a skin layer is employed only on the outer side of the construction, such as the construction 60 shown in FIG. 7, which employs the single skin layer 66 on the outer side of a core layer 62. In this instance, the pressure-sensitive adhesive layer 68 is directly adjacent the core layer. For example, such a construction could be used for the manufacture of high durability labels. Material presently preferred for the core layer in such instance is polyvinyl chloride or acrylonitrile butadiene styrene, and for the skin layer, polyvinylidene fluoride.

It will be understood from the foregoing that multilayer film facestocks have been provided having a relatively thick core layer of polymeric film material which contributes the majority of the stock's dimensional stability and stiffness, having a cojoined, relatively thin, ink-printable skin layer at least at the face side of the construction, and having a pressure-sensitive adhesive layer combined at the sides of the construction opposite the face side. From a method standpoint, this is accomplished by coextruding a plurality of at least two charges of film-forming resin to form a coextrudate having a relatively thick core layer and at least one relatively thin skin layer after preselecting the charge for the core layer, as by selection of density or flex modulus, to provide the degree of stiffness suitable for the label or sign application, and after preselecting the charge for the skin layer to provide a skin adapted to the intended decorating process, and combining the coextrudate with a pressure-sensitive adhesive layer.

Thus, in the manufacture of the facestock 50 seen in FIG. 5, charges D, E, and F, corresponding respectively to layers 52, 54, and 56, may be prepared for coextrusion through a coextrusion die 70, as schematically illustrated in FIG. 8. Charge E for the core layer is preselected to provide the suitable degree of stiffness, charge D is preselected to allow for good printability (usually following corona treatment of the formed film) and for weatherability if indicated, and charge F is preselected for good adhesive anchorage. As previously indicated, often charges D and F for the skin layers may be the same, and in some applications, the skin layer on the inner or adhesive side, corresponding to charge F, is eliminated. The coextrudates 54, 52, 56 forming the facestock may be hot-stretched.

The coextrudate may be directly coated with the adhesive 58, or the adhesive 58 may be transferred from the liner with which the facestock is combined. In particular, the coextrudate of cojoined facestock layers 54, 52, 56 may be substituted for the facestock 32 of FIGS. 3B to 3D, and the adhesive 58 may be the adhesive applied at the coating station S in FIG. 3A. The result is an all-plastic facestock/liner combination in which both the facestock and liner are multilayered.

Instead of being coated or combined on the formed coextrudate as just described, the adhesive 58 may be coextruded along with the film-forming layers 54, 52, 56. The invention also contemplates simultaneously extruding both liner and facestock as by simultaneously extruding all the charges A through F, together with a charge of adhesive 58, which would for example be extruded through an additional orifice adjacent to the orifice for charge F. This would require provision of release means for the liner prior to contact of the liner by the adhesive.

The facestock construction 50a is manufactured in a manner similar to the manufacture of facestock 50. The additional tie layers 53 are coextruded along with the layers 52a, 54a, and 56a.

Claims

1. A liner comprising a multilayer web construction for use with label and sign stock, said web construction comprising a coextrudate in the form of at least two firmly adhered polymeric layers, characterized in that at least one of said layers (12,14,16;12a,16a) comprises a multiphase layer including a continuous phase of polymeric film material and a discontinuous phase of filler material (22,24;22a), both of said phases being dimensionally stable under conditions of moisture absorption and substantially free of voids capable of transmitting moisture from one side of said layer to the other side of the layer, said liner (10) having first and second faces (18,20;18a,20a), at least one of said faces being roughened at least in part by the mechanical effect of the filler material contained in said extrudate to at least 5 Sheffield units, said second face (20;20a) of said liner being roughened by the mechanical effect of the filler to exhibit a roughness in the range of 5 to 150 Sheffield units, and providing a release face including release means (26;26a).

2. A liner as claimed in Claim 1, wherein the

roughness of said second face is less than the roughness of said first face.

3. A liner as claimed in Claim 2, wherein said first face (18,18a) is roughened by the mechanical effect of the filler to exhibit a roughness in the range of 100 to 500 Sheffield units.

4. A liner as claimed in any preceding claim, wherein said web construction comprises a core layer (12,12a) and a skin layer (14,16;16a) on at least one side of the core layer (12,12a), said core layer (12,12a) comprising said multiphase layer containing filler.

5. A liner as claimed in Claim 4, wherein said web construction comprises a core layer (12;12a) and a skin layer (16;16a) on the side of said core layer associated with said second face (20), said filler (22;22a) in said core layer acting through said skin layer (16;16a) to contribute to roughening said second face.

6. A liner as claimed in any preceding claim, wherein only one of said layers contains filler, said filler (22a) being in the layer (12a) adjacent said first face (18).

7. A liner as claimed in Claim 5 and Claim 6, wherein said filler (22a) in said core layer (12a) mechanically roughens said first face (18) to a roughness in the range of from 125-500 Sheffield units, said second face being roughened by mechanical effect of the filler (22a) in said core layer (12a) acting through said skin layer (16a) to a roughness in the range from 5-150 Sheffield units.

8. A liner as claimed in any one of Claims 1-5, wherein at least two layers (12,14,16) of the coextrudate contain filler (22,24).

9. A liner as claimed in Claim 8, wherein said at least two layers (12,14,16) of the coextrudate contain filler (22,24) to preselected differing degrees and/or differing characteristics, whereby said first face (18) exhibits a degree of roughness suitable for high speed web tracking, and said second face (20) exhibits a degree of roughness suitable for a pressure-sensitive adhesive layer to be releasably supported on said release face.

10. A liner as claimed in Claim 9, wherein said differing characteristics of said filler (22,24) are provided by filler particles of differing size and/or shape.

11. A liner as claimed in Claim 8 when appendant to Claim 5, wherein said web construction comprises a core layer (12), a first skin layer (14) on the side of said core layer associated with said first face (18), and a second skin layer (16) on the side of said core layer associated with said second face (20), said first skin layer (14) having filler (24) therein.

12. A liner as claimed in Claim 11, wherein said filler (24) in said first skin (14) mechanically roughens said first face (18) to a roughness in the range of from 100-350 Sheffield units, said second face (20) being roughened by the mechanical effect of the filler (22) in said core (12) acting through said second skin (16) to a roughness in the range of from 5-150 Sheffield units.

13. A liner as claimed in Claim 4, or any one of Claims 5-12 when appendant to Claim 4, wherein the filler (22,24;22a) comprises between 10% and 40% by weight of the core layer (12;12a).

14. A liner as claimed in any preceding claim, wherein said polymeric film material is selected from acrylonitrile-butadiene styrene, nylon and polystyrene.

15. A liner as claimed in Claim 5, or any one of Claims 6-14 when appendant to Claim 5, wherein said release means (26) comprises a release coating, said polymeric material of said skin layer (16;16a) being effective to receive and anchor said release coating while acting as a barrier against absorption of said release coating into said core (12;12a).

16. A liner as claimed in any preceding claim, wherein said release means (26) comprises a silicone release coating.

17. A liner as claimed in any preceding claim, wherein the liner is stretched to provide machine direction orientation in the liner.

18. Roll or sheet stock for pressure-sensitive labels, signs or other graphics, characterized in that a liner (10) as claimed in any preceding claim is combined with facestock (32;50;50a;60) by a pressure sensitive adhesive layer (40;58;58a;68) which is releasably supported on said release face of the liner.

19. Roll or sheet stock according to Claim 18, wherein said facestock comprises a coextrudate of cojoined layers characterized by a

relatively thick core layer (52;52a;62) of polymeric film material of a stiffness of from 10 to 100 Gurley and at least one relatively thin skin layer (54,56;54a,56a;66), said skin layer being on the face side of the coextrudate and having and ink-printable surface.

20. Roll or sheet stock as claimed in Claim 19, wherein said core material (52;52a;62) is polyethylene of a specific gravity of from 0.890 to 0.965 or a polypropylene polymer or copolymer with a flex modulus range of from 896.35 x 10^5 to 1723.75 x 10^5 Pa (130,000 to 250,000 psi) at 22.8° C (73° F).

21. Roll or sheet stock as claimed in Claim 20, wherein said skin layer (54,56;54a,56a;66) comprises ethylene vinyl acetate or polyvinyl chloride having a corona-treated outer surface.

22. Roll or sheet stock as claimed in any one of Claims 19-21, wherein said coextrudate has a tie layer (53) between said core layer (52a) and said at least one skin layer (54a,56a).

23. A method of manufacturing all-plastics liner for label stock which will roughen the adhesive surface of the label stock to a degree suitable for labeling applications while simultaneously providing for the roughening of the exposed face of the liner to a higher degree suitable for high speed web tracking, comprising providing a plurality of at least two charges of film-forming resin of like or unlike composition, and characterized by the steps of:
predefining a fill differential by mixing filler (22,24) in said charges to preselected differing degrees and/or of differing charge characteristics sufficient to affect the roughness of each face (18,20) of the resulting coextrudate;
coextruding said charges to thereby form a multilayer polymeric liner comprising cojoined layers (12,14,16) and establish said predefined fill differential between different layers of the formed liner and thereby differentially affect the roughness of the liner faces;
and choosing said preselected differing degrees and/or characteristics of filler mix such that the face (20) of the liner which is to contact the adhesive surface of label stock exhibits a degree of roughness suitable for the label adhesive and the face (18) of the liner which is to be the exposed face in use exhibits a higher degree of roughness suitable for high speed web tracking.

24. A method as in Claim 23, characterized in that, in said step of mixing filler (22,24) in said charges to preselected different degrees and/or characteristics, one of the selected degrees is zero amount of filler.

25. A method as in Claim 23, characterized by the step of hot-stretching the formed films to provide machine direction orientation of the polymeric liner.

Revendications

1. Doublure comprenant une structure de nappe multicouche, destinée à servir avec de la matière pour étiquettes, marques ou enseignes, signes, repères ou indices, ladite structure de nappe comprenant un co-extrudat en forme d'au moins deux couches polymères fermement collées (l'une à l'autre), doublure caractérisée en ce qu'au moins l'une desdites couches (12, 14, 16 ; 12a, 16a) comprend une couche multiphase comprenant une phase continue d'une matière de pellicule polymère et une phase discontinue d'une matière de charge (22, 24 ; 22a), ces deux phases ayant des dimensions stables dans des conditions d'absorption d'humidité et étant essentiellement dépourvues de vides capables de transmettre l'humidité d'un côté de ladite couche vers l'autre côté de la couche, ladite doublure (10) comportant des première et seconde faces (18, 20 ; 18a, 20a), l'une au moins desdites faces étant rendue rugueuse, au moins en partie, par l'effet mécanique de la matière de charge contenue dans ledit extrudat, jusqu'à au moins 5 unités Sheffield, ladite seconde face (20 ; 20a) de ladite doublure étant rendue rugueuse par l'effet mécanique de la charge de manière à présenter une rugosité comprise entre 5 et 150 unités Sheffield et présentant une face à rôle de séparation comprenant un moyen (26 ; 26a) permettant cette séparation.

2. Doublure telle que revendiquée à la revendication 1, dans laquelle la rugosité de ladite seconde face est inférieure à la rugosité de ladite première face.

3. Doublure telle que revendiquée à la revendication 2, dans laquelle ladite première face (18, 18a) est rendue rugueuse par l'effet mécanique de la charge de manière à présenter une rugosité se situant entre 100 et 500 unités Sheffield.

4. Doublure telle que revendiquée dans l'une quelconque des revendications précédentes, dans laquelle ladite structure de nappe comprend une couche (12, 12a) de noyau central

ou d'âme et une couche (14, 16 ; 16a) de peau sur au moins un côté de la couche (12, 12a) formant l'âme, ladite couche (12, 12a) formant une âme comprenant ladite charge contenant une couche multiphase.

5. Doublure telle que revendiquée à la revendication 4, dans laquelle ladite structure de nappe comprend une couche (12 ; 12a) en forme d'âme et une couche (16 ; 16a) de peau sur le côté de ladite couche formant âme associé à ladite seconde face (20), ladite charge (22 ; 22a) dans ladite couche formant âme agissant, à travers ladite couche (16 ; 16a) formant peau pour contribuer à rendre rugueuse ladite seconde face.

6. Doublure telle que revendiquée dans l'une quelconque des revendications précédentes, dans laquelle une seule desdites couches contient de la charge, ladite charge (22a) étant dans la couche (12a) adjacente à ladite première face (18).

7. Doublure telle que revendiquée à la revendication 5 et à la revendication 6, dans laquelle ladite charge (22a) présente dans ladite couche (12a) formant une âme, exerce un effet mécanique conférant à ladite première face (18) une rugosité allant jusqu'à une valeur comprise entre 125 et 500 unités Sheffield, ladite seconde face étant rugueuse par l'effet mécanique exercé par la charge (22a) présente dans ladite couche (12a) formant une âme et agissant à travers ladite couche (16a) de peau jusqu'à conférer une rugosité comprise entre 5 et 150 unités Sheffield.

8. Doublure telle que revendiquée dans l'une quelconque des revendications 1 à 5, dans laquelle au moins deux couches (12, 14, 16) du co-extrudat contiennent de la charge (22, 24).

9. Doublure telle que revendiquée dans la revendication 8, dans laquelle lesdites au moins deux couches (12, 14, 16) du co-extrudat contiennent de la charge (22, 24) jusqu'à des degrés différents choisis au préalable et/ou ayant des caractéristiques différentes, de sorte que ladite première face (18) présente un degré de rugosité convenant pour une poursuite de nappe à grande vitesse, et ladite seconde face (20) présente un degré de rugosité convenant bien pour qu'une couche d'adhésif, sensible à la pression, soit amoviblement supportée sur ladite face destinée à permettre une séparation.

10. Doublure telle que revendiquée à la revendication 9, dans laquelle lesdites caractéristiques différentes de ladite charge (22, 24) sont conférées par des particules de la charge ayant une taille et/ou une forme différente(s).

11. Doublure telle que revendiquée à la revendication 8, lorsqu'elle est prise avec la revendication 5, dans laquelle ladite structure de nappe comprend une couche (12) de noyau central ou d'âme, une première couche (14) de peau sur le côté de ladite couche d'âme associé à ladite première face (18), et une seconde couche (16) de peau sur le côté de ladite couche formant une âme associé à ladite seconde face (20), ladite première couche (14) de peau comportant de la charge (24).

12. Doublure telle que revendiquée à la revendication 11, dans laquelle ladite charge (24) présente dans ladite première peau (14) confère mécaniquement à ladite première face (18) une rugosité allant jusqu'à une valeur comprise entre 100 et 500 unités Sheffield, ladite seconde face (20) étant rendue rugueuse par l'effet mécanique de la charge (22) présente dans ladite âme (12), agissant à travers ladite seconde peau (16) jusqu'à conférer une rugosité se situant entre 5 et 150 unités Sheffield.

13. Doublure telle que revendication à la revendication 4, ou dans l'une quelconque des revendications 5 à 12 prise avec la revendication 4, dans laquelle la charge (22, 24 ; 22a) représente entre 10 % et 40 % du poids de la couche (12 ; 12a) formant une âme.

14. Doublure telle que revendiquée dans l'une quelconque des revendications précédentes, dans laquelle ladite matière de pellicule polymère est choisie parmi de l'acrylonitrile-butadiène-styrène, du "Nylon" et du polystyrène.

15. Doublure telle que revendiquée à la revendication 5 ou dans l'une quelconque des revendications 6 à 14 prise avec la revendication 5, dans laquelle ledit moyen (26) destiné à permettre une séparation comprend un revêtement destiné à permettre une séparation, ladite matière polymère de ladite couche (16 : 16a) de peau pouvant efficacement recevoir et ancrer ledit revêtement destiné à permettre une séparation tout en jouant le rôle d'une barrière s'opposant à une absorption dudit revêtement, destiné à permettre une séparation, dans ladite âme (12 ; 12a).

16. Doublure telle que revendiquée dans l'une quelconque des revendications précédentes, dans laquelle ledit moyen (26) destiné à permettre une séparation comprend un revêtement à base de silicones destiné à permettre une séparation.

17. Doublure telle revendiquée dans l'une quelconque des revendications précédentes, dans laquelle la doublure est étirée de façon à assurer dans la doublure l'existence d'une orientation dans le sens machine.

18. Matière pour rouleau ou feuille(s) pour des étiquettes, marques, enseignes, signes, repères ou autres éléments graphiques, pouvant être collés sous l'effet d'une pression, matière caractérisée en ce qu'une doublure (10), telle que revendiquée dans l'une quelconque des revendications précédentes, est combinée à de la matière de face (30 ; 50 ; 50a ; 60) grâce à une couche (40 ; 58 ; 58a ; 68) d'adhésif sensible à la pression, qui est supportée, de façon à permettre une séparation, sur ladite face de la doublure, destinée à permettre une séparation.

19. Matière de rouleau ou de feuille(s) selon la revendication 18, dans laquelle ladite matière de face comprend un co-extrudat de couches co-jointes, co-extrudat caractérisé en ce qu'il comporte une couche (52 ; 52a ; 62) d'une âme relativement épaisse en une matière de pellicule polymère ayant une rigidité de 10 à 100 unités Gurley et au moins une couche (54, 56 ; 54a , 56a; 66) d'une peau relativement mince, ladite couche de peau étant sur le côté de la face du co-extrudat et ayant une surface imprimable à l'encre.

20. Matière de rouleau ou de feuille(s) telle que revendiquée à la revendication 19, dans laquelle ladite matière constituant une âme (52 ; 52a ; 62) est du polyéthylène ayant une densité de 0,890 à 0,965 ou est un polymère ou copolymère de type polypropylène ayant un module de flexion compris entre $896,35 \times 10^6$ et $1723,75 \times 10^6$ Pa (130 000 à 250 000 livres par pouce carré, psi) à 22,8 °C (73 °F).

21. Matière pour rouleau ou feuille(s) telle que revendiquée à la revendication 20, dans laquelle ladite couche de peau (54, 56 ; 54a, 56a ; 66) comprend de l'éthylène/acétate de vinyle ou du poly(chlorure de vinyle) ayant une surface extérieure traitée par effet couronne.

22. Matière de rouleau ou de feuille(s) telle que revendiquée dans l'une quelconque des revendications 19 à 21, dans laquelle ledit co-extrudat comporte, entre ladite couche (52a) formant une âme et ladite au moins une couche de peau (54a, 56a),une couche (53) de liaison.

23. Procédé de fabrication d'une doublure entièrement en de la matière plastique pour une matière pour étiquettes, marques ou enseignes qui va rendre rugueuse la surface adhésive de la matière pour étiquettes, à un degré convenable pour des applications à du marquage tout en assurant simultanément l'obtention d'un état rugueux de la face exposée de la doublure, à un degré supérieur convenant pour une observation de poursuite ou un alignement d'une nappe à grande vitesse, ce procédé comprenant la fourniture de plusieurs, et au moins deux, charges d'une résine filmogène de composition analogue ou différente, et le procédé étant caractérisé par les étapes consistant à :
prédéfinir une différence de garnissage en incorporant par mélangeage de la matière de remplissage (22, 24) auxdites charges jusqu'à des degrés différents, choisis au préalable et/ou ayant des caractéristiques différentes de charge, suffisantes pour influer sur la rugosité de chaque face (18, 20) du co-extrudat résultant ;
co-extruder lesdites charges afin de former une doublure polymère multicouche comprenant des couches (12, 14, 16) co-jointes, d'établir ladite différence prédéfinie de remplissage entre les différentes couches de la doublure ainsi formée, et d'influer ainsi de manière différente sur la rugosité des faces de la doublure ; et à choisir lesdits degrés différents, choisis au préalable, et/ou lesdites caractéristiques choisies au préalable du mélange de garnissage de façon que la face (20) de la doublure qui doit venir au contact de la surface adhésive de la matière pour étiquettes ou marquage présente un degré de rugosité convenant pour l'adhésif de l'étiquette et que la face (18) de la doublure qui doit constituer en service la face exposée (à la vue) présente un degré supérieur de rugosité convenant pour une surveillance de poursuite ou un alignement de nappes à grande vitesse.

24. Procédé selon la revendication 23, caractérisé en ce que, dans ladite étape d'incorporation de la matière de garnissage (22, 24) auxdites charges jusqu'à des degrés différents et/ou des caractéristiques différentes choisi(e)s au préalable, l'un des degrés choisis est constitué par une quantité nulle de la matière de garnis-

sage.

25. Procédé selon la revendication 23, caractérisé en ce qu'il comporte une étape d'étirage à chaud des pellicules formées afin de conférer une orientation de sens machine à la doublure polymère.

Ansprüche

1. Liner bestehend aus einem mit Etiketten und Zeichenpapierstoff zu verwendenden mehrschichtigen Bahnaufbau, der ein Koextrudat in Form von zumindest zwei fest haftenden polymeren Schichten aufweist, dadurch **gekennzeichnet**, daß zumindest eine der Schichten (12, 14, 16; 12a, 16a) eine Mehrphasenschicht einschließlich einer kontinuierlichen Phase polymeren Filmstoff sowie einer diskontinuierlichen Phase Füllstoff (22, 24; 22a) aufweist, wobei beide Phasen unter Bedingungen der Feuchtigkeitsabsorption dimensionsstabil und allgemein frei von Leerstellen sind, von denen Feuchtigkeit von einer Seite der Schicht zur anderen Seite der Schicht übertragen werden kann, der Liner (10) eine erste und eine zweite Fläche (18, 20; 18a, 20a) hat, von denen zumindest eine der Flächen wenigstens teilweise durch die mechanische Wirkung des im Extrudat enthaltenen Füllstoffes auf mindestens 5 Sheffieldeinheiten und die zweite Fläche (20;20a) des Liners durch die mechanische Wirkung des Füllstoffes auf eine im Bereich von 5 bis 150 Sheffieldeinheiten liegende Rauhigkeit gerauht ist, und wobei diese zweite Fläche des Liners eine Ablösefläche einschließlich des Ablösemittels (26; 26a) vorsieht.

2. Liner nach Anspruch 1, dadurch **gekennzeichnet**, daß die Rauhigkeit der zweiten Fläche geringer ist als die Rauhigkeit der ersten Fläche.

3. Liner nach Anspruch 2, dadurch **gekennzeichnet**, daß die erste Fläche 18, 18a) durch die mechanische Wirkung des Füllstoffes auf eine im Bereich von 100 bis 500 Sheffieldeinheiten liegenden Rauhigkeit gerauht ist.

4. Liner nach einem der vorhergehenden Ansprüche 1 bis 3, dadurch **gekennzeichnet**, daß der Bahnaufbau eine Kernschicht (12, 12a) und eine Hautschicht (14, 16; 16a) auf wenigstens einer der Seiten der Kernschicht (12, 12a) aufweist, die aus einer Füllstoff enthaltenden mehrphasigen Schicht besteht.

5. Liner nach Anspruch 4, dadurch **gekennzeichnet**, daß der Bahnaufbau eine Kernschicht (12;12a) und eine Hautschicht (16; 16a) auf der der zweiten Fläche (20) zugeordneten Seite der Kernschicht aufweist, wobei der Füllstoff (22,22a) in der Kernschicht durch die Hautschicht (16;16a) mit seiner Wirkung dazu beiträgt, die zweite Fläche rauhig zu machen.

6. Liner nach einem der vorhergehenden Ansprüche 1 bis 5, dadurch **gekennzeichnet**, daß nur eine der Schichten Füllstoff enthält, wobei sich der Füllstoff (22a) in der Schicht (12a) nächstliegend zur ersten Fläche (18) befindet.

7. Liner nach einem der vorhergehenden Ansprüche 5 und 6, dadurch **gekennzeichnet**, daß der Füllstoff (22a) in der Kernschicht (12a) die erste Fläche (18) auf eine im Bereich von 125 bis 500 Sheffieldeinheiten liegende Rauhigkeit mechanisch aufrauht, wobei die zweite Fläche durch die mechanische Wirkung des Füllstoffs (22a) in der Kernschicht (12a) durch die Hautschicht (16a) wirkend auf eine im Bereich von 5 bis 150 Sheffieldeinheiten liegende Rauhigkeit geraut wird.

8. Liner nach einem der vorhergehenden Ansprüche 1 bis 5, dadurch **gekennzeichnet**, daß zumindest zwei Schichten (12, 14, 16) des Koextrudats Füllstoff (22, 24) enthalten.

9. Liner nach Anspruch 8, dadurch **gekennzeichnet**, daß zumindest zwei Schichten (12, 14, 16) des Koextrudats auf unterschiedliche Grade und/oder unterschiedliche Charakteristika vorgewählten Füllstoff enthalten, wobei die erste Fläche (18) einen Rauhigkeitsgrad, der sich zur Schnellbahnspurführung eignet, und die zweite Fläche (20) einen Rauhigkeitsgrad bietet, der dazu geeignet ist, daß eine druckempfindliche Haftschicht lösbar von der Ablösefläche getragen wird.

10. Liner nach Anpsurch 9, dadurch **gekennzeichnet**, daß die unterschiedlichen Charakteristika des Füllstoffs (22, 24) durch Füllerteilchen unterschiedlicher Größe und/oder Form zustande kommen.

11. Liner nach Anspruch 8 in Abhängigkeit von Anspruch 5, dadurch **gekennzeichnet**, daß der Bahnaufbau eine Kernschicht (12), eine erste Hautschicht (14) auf der Seite der der ersten Fläche (18) zugeordneten Kernschicht und eine zweite Hautschicht (16) auf der der zweiten Fläche (20) zugeordneten Kernschicht aufweist, wobei in der ersten Hautschicht (14)

Fülltstoff (24) enthalten ist.

12. Liner nach Anspruch 11, dadurch **gekennzeichnet**, daß der Füllstoff (24) in der ersten Hautschicht (14) die erste Fläche (18) auf eine im Bereich von 100 bis 350 Sheffieldeinheiten liegenden Rauhigkeit mechanisch aufrauht, wobei die zweite Fläche (20) durch die mechanische Wirkung des Füllstoffs (22) durch die zweite Hautschicht (16) wirkend auf eine im Bereich von 5 bis 150 Sheffieldeinheiten liegende Ruhigkeit gerauht wird.

13. Liner nach Anspruch 4 oder einem der vorhergehenden Ansprüche 5 bis 12 in Abhängigkeit von Anspruch 4, dadurch **gekennzeichnet**, daß der Füllstoff (22, 24;22a) zwischen 10 und 40 Gew.% der Kernschicht (12; 12a) ausmacht.

14. Liner nach einem der vorhergehenden Ansprüche 1 bis 13, dadurch **gekennzeichnet**, daß als Polymerfilmmaterial Akrylnitril-Butadien-Styrol, Nylon und Polystyrol gewählt wird.

15. Liner nach Anspruch 5 oder einem der vorhergehenden Ansprüche 6 bis 14 in Abhängigkeit von Anspruch 5, dadurch **gekennzeichnet**, daß das Ablösemittel (26) einen Ablösungsüberzug aufweist, wobei der Polymerstoff der Hautschicht (16; 16a) wirksam ist, den Ablösungsüberzug aufzunehmen und zu verankern, während er als Sperre gegen die Absorption des Ablösungsüberzugs in den Kern (12;12a) hinein wirksam ist.

16. Liner nach einem der vorhergehenden Ansprüche 1 bis 15, dadurch **gekennzeichnet**, daß das Ablösemittel (26) einen Silikonablösungsüberzug aufweist.

17. Liner nach einem der vorhergehenden Ansprüche 1 bis 16, dadurch **gekennzeichnet**, daß der Liner gestreckt ist, um eine Maschinenrichtungsausrichtung im Liner vorzusehen.

18. Papierrollen oder Bogenpapierzeug für druckempfindliche Etiketten, Zeichen oder Graphiken, dadurch **gekennzeichnet**, daß ein Liner (10) nach einem der vorhergehenden Ansprüche 1 bis 17 mit Flächenzeug (32; 50; 50a; 60) durch eine druckempfindliche Haftschicht (40; 58; 58a; 68) vereinigt wird, die von der Ablösungsfläche des Liners lösbar getragen wird.

19. Papierrollen oder Bogenpapierzeug nach Anspruch 18, mit ein Koextrudat von miteinander verbundenen Schichten aufweisenden Flächenzeug, **gekennzeichnet** durch eine relativ dicke Kernschicht (52; 52a;62) aus Polymerfilmmaterial einer Steifheit von 10 bis 100 Gurley sowie zumindest einer relativ dünnen Hautschicht (54, 56; 54a, 56a; 66), wobei die Hautschicht sich auf der Flächenseite des Koextrudats befindet und eine mit Tinte bedruckbare Oberfläche besitzt.

20. Papierrollen oder Bogenpapierzeug nach Anspruch 19, dadurch **gekennzeichnet**, daß als Kernmaterial (52; 52a; 62) Polyäthylen einer Dichtezahl von 0,8890 bis 0,965 oder Polypropylpolymer oder -kopolymer mit einem Biegemodul im Bereich von $896,35 \times 10^6$ bis $1723,75 \times 10^6$ Pa) bei 22,18° C verwendet wird.

21. Papierrollen oder Bogenpapierzeug nach Anspruch 20, dadurch **gekennzeichnet**, daß die Hautschicht (54, 56; 54a, 56a; 66) Äthylenvinylazetat oder Polyvinylchlorid mit einer koronabehandelten äußeren Oberfläche aufweist.

22. Papierrollen oder Bogenpapierzeug nach einem der vorhergehenden Ansprüche 19 bis 21, dadurch **gekennzeichnet**, daß das Koextrudat eine Verbundschicht (53) zwischen der Kernschicht (52a) und zumindest einer Hautschicht (54a, 56a) besitzt.

23. Verfahren zum Herstellen von Gesamtkunststoff-Liner für Etikettenmaterial, wobei die Haftfläche des Etikettenmaterials bis zu einem Grad geraut wird, der für die Etikettenaufbringung zweckmäßig ist, während gleichzeitig das An- oder Aufrauhen der exponierten Fläche des Liners zu einem höheren Grad geschieht, der für die Schnellbahnspurführung zweckmäßig ist, und indem mehrmals zumindest zwei abgeteilten Mengen filmbildendes Harz ähnlicher oder unähnlicher Zusammensetzung bereitgestellt wird, **gekennzeichnet** durch die Verfahrensschritte des

Vorbestimmens eines Fülldifferentials durch Mischen des Füllstoffs (22, 24) in Einsatzgutmengen auf vorgewählte unterschiedliche Grade und/oder unterschiedliche Einsatzgutcharakteristika, die so günstig beschaffen sind, die Rauhigkeit jeder Fläche (18, 20) des sich ergebenden Koextrudats zu beeinflußen,

Koextrudierens der Einsatzgutmengen, um hierdurch einen Mehrschicht-Polymerliner bestehend aus miteinander verbundenen Schichten (12, 14, 16) zu bilden und das vorbestimmte Fülldifferential zwischen den verschiedenen Schichten des geformten Liners zu erstellen

sowie damit die Rauhigkeit der Linerflächen differentiell zu beeinflußen, und des

Auswählens der vorgewählten unterschiedlichen Grade und/oder Charakteristika der Füllmischung, so daß die Fläche (20) des Liners, die mit der Haftfläche des Etikettneinsatzgutes in Kontakt kommt, einen Rauhigkeitsgrad bietet, der für den Etikettenhaftstoff zweckmäßig ist, und die Fläche (18) des Liners, die die exponierte Fläche ist, einen höheren Rauhigkeitsgrad bietet, der für die Schnellbahnspurführung zweckmäßig ist.

24. Verfahren nach Anspruch 23, dadurch **gekennzeichnet**, daß beim Verfahrensschritt des Füllstoff (22, 24) mischens in den Einsatzgutmengen auf vorgewählte unterschiedliche Grade und/oder Charakteristika eine der gewählten Grade ein Nullfüllstoffanteil ist.

25. Verfahren nach Anspruch 23, **gekennzeichnet** durch den Verfahrensschritt des Heißstreckens der geformten Filme, um eine Maschinenrichtungsausrichtung des Polymerliners vorzusehen.

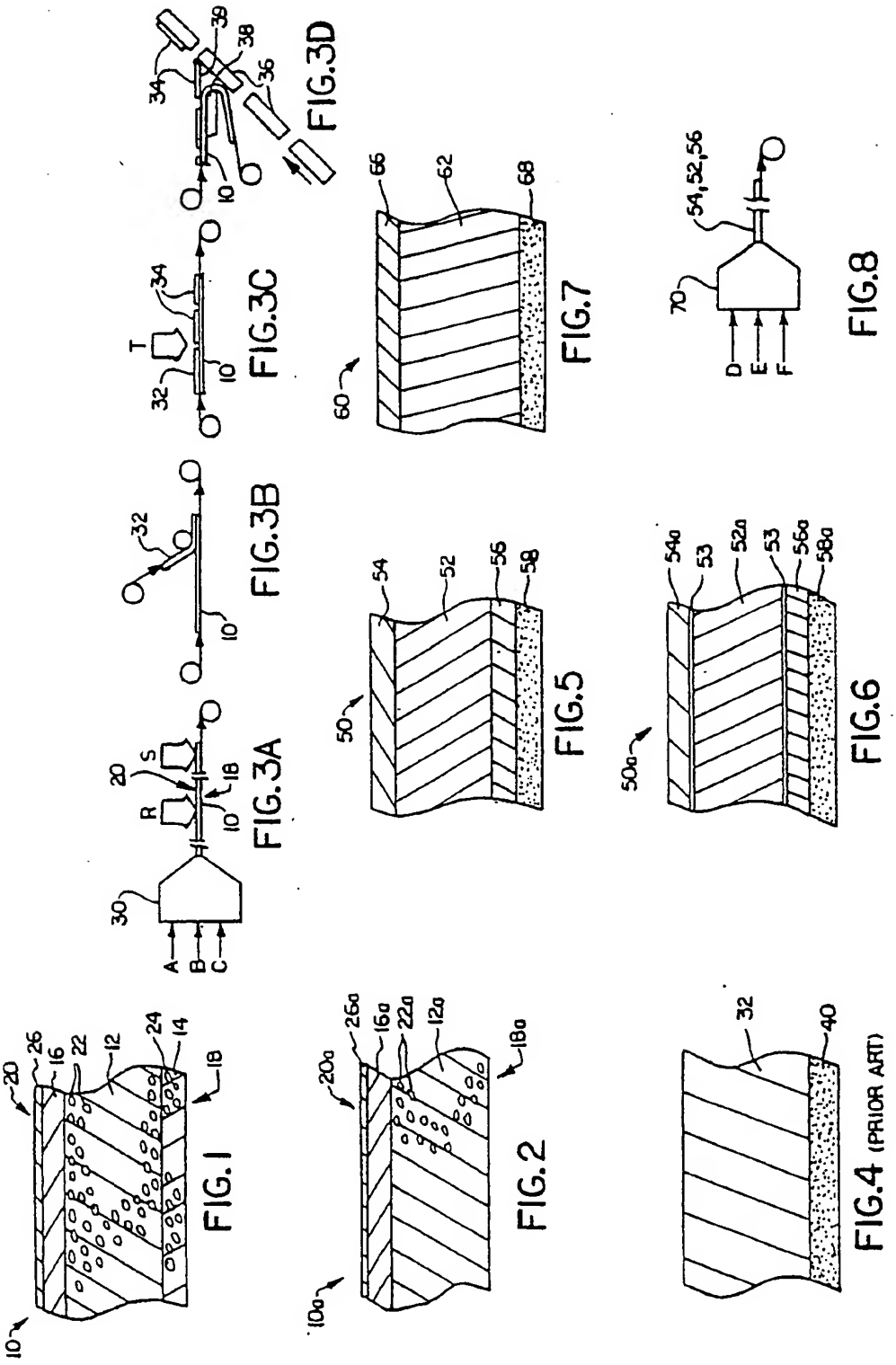

FIG.1

FIG.2

FIG.4 (PRIOR ART)

FIG.5

FIG.6

FIG.7

FIG.8

FIG.3A

FIG.3B

FIG.3C

FIG.3D